

# The Exotic Higgs Decay Working Group

D. Curtin, R. Essig, S. Gori, P. Jaiswal, A. Katz, E. Kuflik, T. Liu,  
D. McKeen, J. Shelton, Z. Surujon, B. Tweedie, T. Volansky, Y. Zhong

LHC Higgs coupling measurements or BSM searches will never restrict many non-SM Higgs decays to  $\lesssim 10\%$ . Hence we *must* look for them explicitly!

e.g.  $h \rightarrow 4x, 2x2y$  ( $x, y = e, \mu, \tau, \gamma, b, j, \dots$ ),  $h \rightarrow \cancel{E}_T, h \rightarrow \gamma + \cancel{E}_T, h \rightarrow \text{lepton jets} + \cancel{E}_T, \dots$

## Working Group Aims

- survey & systematize possible exotic decays of 125 GeV “Higgs”
- develop search strategies & assess discovery potential for LHC8 & LHC14
- suggest list of priorities
- provide viable benchmark models/points
- inform LHC14 trigger selection

## Status and Timeline

- draft of survey document well underway
- collider studies of most promising modes starting now